

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Please cancel claims 3, 4, 5, 7 to 11, 13 to 24, and 29 to 41 without prejudice or disclaimer.

Please amend claims 1, 2, 12, 25, 27 and 28 as set forth below.

Please add claims 42 to 53 as set forth below.

1. (currently amended) A radiation resistant *Deinococcus* bacterium comprising a nucleic acid encoding at least one *mer* operon capable of detoxifying at least one heavy metal when expressed engineered to detoxify at least one the toxin, wherein said *Deinococcus* can grow in the presence of continuous ionizing radiation exposure.

2. (currently amended) A radiation resistant *Deinococcus* bacterium of claim 1, wherein which survives acute exposure to ionizing radiation of up to about 15,000 Gy or said *Deinococcus* bacterium is non-pathogenic and can grow in the presence of continuous ionizing radiation of up to about 60 Gy/hour.

3 to 5. (cancelled)

6. (currently amended) A radiation resistant bacterium of claim 4 1, wherein the at least one heavy metal is selected from the group consisting of chromium, lead, arsenic, zinc, cadmium, cobalt or mercury.

7 to 11. (cancelled)

12. (currently amended) A radiation resistant bacterium of claim 1, wherein the bacterium has been engineered to express at least one protein encoded by a nucleic acid other than the *mer* operon a heterologous protein or enzyme selected from the group consisting of toluene dioxygenase, the proteins encoded by the *mer* operon, the proteins encoded by the *Pseudomonas* Tol region, the proteins encoded by the *xyl* *xYE* operon, a monooxygenase, the proteins encoded by *bphA1A2A3A4*, the proteins encoded by *ezeA*, *B* and *C* genes, the *smtA* and *B* genes and the *arsA* and *B* genes.

13 to 24. (cancelled)

25. (currently amended) A bioremediation composition comprising the *Deinococcus* a bacterium of any one of claim 1.

26. (original) A bioremediation composition of claim 25 further containing an agent selected from the group consisting of a film forming agent and a nutrient agent.

27. (currently amended) A bioremediation composition of claim 25 which is if formulated for controlled release.

28. (currently amended) A bioremediation composition of claim 26 which is if formulated for controlled release.

29 to 41. (cancelled)

42. (new) The radiation resistant *Deinococcus* bacterium of claim 1, wherein said *Deinococcus* is *Deinococcus radiodurans* (strain ATCC BAA-816).

43. (new) The radiation resistant *Deinococcus* bacterium of claim 1, wherein the *mer* operon is constitutively expressed.

44. (new) The radiation resistant *Deinococcus* bacterium of claim 1, wherein at least one *mer* operon is integrated into said *Deinococcus* bacterium genome.

45. (new) The radiation resistant *Deinococcus* bacterium of claim 1, wherein said *Deinococcus* grows in the presence of up to 100 μ M mercury.

46. (new) The radiation resistant *Deinococcus* bacterium of claim 1, wherein the nucleic acid encoding the *mer* operon is expressed from an autonomously replicating plasmid.

47. (new) The radiation resistant *Deinococcus* bacterium of claim 46 wherein said autonomously replicating plasmid is pMD66 or a derivative thereof.

48. (new) The radiation resistant *Deinococcus* bacterium of claim 1, wherein the nucleic acid encoding the *mer* operon is intergrated in a plasmid.

49. (new) The radiation resistant *Deinococcus* bacterium of claim 48, wherein the plasmid is pMD727 or a derivative thereof.

50. (new) The radiation resistant *Deinococcus* bacterium of claim 48, wherein the plasmid is pMD728 or a derivative thereof.

51. (new) The radiation resistant *Deinococcus* bacterium of claim 48, wherein the plasmid is pMD731 or a derivative thereof.

52. (new) A radiation resistant *Deinococcus radiodurans* bacterium comprising a nucleic acid encoding at least one *mer* operon capable of detoxifying at least one heavy metal when expressed, wherein said

Deinococcus can grow in the presence of continuous ionizing radiation exposure.

53. (new) A radiation resistant, non-pathogenic *Deinococcus radiodurans* bacterium comprising a nucleic acid encoding at least one *mer* operon capable of detoxifying at least one heavy metal when expressed, wherein said *Deinococcus* can grow in the presence of continuous ionizing radiation exposure.